WE CLAIM

What is claimed is:

1. A method for inhibiting the corrosion of metals embedded in a cementitious material, said cementitious material manufacturable from a process comprising the activities of:

manufacturing lithium nitrate; and

providing said lithium nitrate for addition to said cementitious material at an effective dosage rate.

2. The method of claim 1, wherein said effective dosage rate is between about 0.01 gram moles of lithium nitrate per cubic foot of cementitious material and about 100 gram moles of lithium nitrate per cubic foot of cementitious material.

3. The method of claim 1, wherein said effective dosage rate is between about 0.01 gram moles of lithium nitrate per cubic foot of cementitious material and about 0.1 gram moles of lithium nitrate per cubic foot of cementitious material.

4. The method of claim 1, wherein said effective dosage rate is between about 0.1 gram moles of lithium nitrate per cubic foot of cementitious material and about 1 gram moles of lithium nitrate per cubic foot of cementitious material.

5. The method of claim 1, wherein said effective dosage rate is between about 1 gram moles of lithium nitrate per cubic foot of cementitious material and about 10 gram moles of lithium nitrate per cubic foot of cementitious material.

6. The method of claim 1, wherein said effective dosage rate is between about 10 gram moles of lithium nitrate per cubic foot of cementitious material and about 100 gram moles of lithium nitrate per cubic foot of cementitious material.

7. The method of claim 1, wherein said effective dosage rate is about 0.815 gram moles of lithium nitrate per cubic foot of cementitious material.

8. The method of claim 1, wherein said lithium nitrate is provided as a solid.

9. The method of claim 1, wherein said lithium nitrate is provided in an aqueous solution.

10. The method of claim 1, wherein said cementitious material is concrete.

11. The method of claim 1, wherein said cementitious material is grout.

12. The method of claim 1, wherein said cementitious material is mortar.

13. The method of claim 1, wherein said cementitious material is pozzalanic cement.

14. The method of claim 1, wherein said cementitious material is at least one of cement, grout, mortar, and pozzalanic cement, or any combination thereof.

15. A method for inhibiting the corrosion of metals embedded in concrete or any other cementitious material, said concrete or cementitious material manufacturable from a process comprising the activities of:

obtaining lithium nitrate; and

mixing said lithium nitrate with said concrete or cementitious material at an effective dosage rate.

16. The method of claim 15, wherein said effective dosage rate is between

about 0.01 gram moles of lithium nitrate per cubic foot of concrete or cementitious material and about 100 gram moles of lithium nitrate per cubic foot of concrete or cementitious material.

17. The method of claim 15, wherein said effective dosage rate is between about 0.01 gram moles of lithium nitrate per cubic foot of concrete or cementitious material and about 0.1 gram moles of lithium nitrate per cubic foot of concrete or cementitious material.

18. The method of claim 15, wherein said effective dosage rate is between about 0.1 gram moles of lithium nitrate per cubic foot of concrete or cementitious material and about 1 gram moles of lithium nitrate per cubic foot of concrete or cementitious material.

19. The method of claim 15, wherein said effective dosage rate is between about 1 gram moles of lithium nitrate per cubic foot of concrete or cementitious material and about 10 gram moles of lithium nitrate per cubic foot of concrete or cementitious material.

20. The method of claim 15, wherein said effective dosage rate is between about 10 gram moles of lithium nitrate per cubic foot of concrete or cementitious material and about 100 gram moles of lithium nitrate per cubic foot of concrete or cementitious material.

21. The method of claim 15, wherein said effective dosage rate is about 0.815 gram moles of lithium nitrate per cubic foot of concrete or cementitious material.

22. A method for inhibiting the corrosion of metals embedded in grout, said

grout manufacturable from a process comprising the activities of:

obtaining lithium nitrate; and

mixing said lithium nitrate with said grout at an effective dosage rate.

23. The method of claim 22, wherein said effective dosage rate is between about 0.01 gram moles of lithium nitrate per cubic foot of grout and about 80 gram moles of lithium nitrate per cubic foot of grout.

24. The method of claim 22, wherein said effective dosage rate is between about 0.01 gram moles of lithium nitrate per cubic foot of grout and about 82 gram moles of lithium nitrate per cubic foot of grout.

25. The method of claim 22, wherein said effective dosage rate is between about 0.01 gram moles of lithium nitrate per cubic foot of grout and about 100 gram moles of lithium nitrate per cubic foot of grout.

26. The method of claim 22, wherein said effective dosage rate is between about 0.01 gram moles of lithium nitrate per cubic foot of grout and about 0.1 gram moles of lithium nitrate per cubic foot of grout.

27. The method of claim 22, wherein said effective dosage rate is between about 0.1 gram moles of lithium nitrate per cubic foot of grout and about 1 gram moles of lithium nitrate per cubic foot of grout.

28. The method of claim 22, wherein said effective dosage rate is between about 1 gram moles of lithium nitrate per cubic foot of grout and about 10 gram moles of lithium nitrate per cubic foot of grout.

29. The method of claim 22, wherein said effective dosage rate is between

about 10 gram moles of lithium nitrate per cubic foot of grout and about 100 gram moles of lithium nitrate per cubic foot of grout.

30. The method of claim 22, wherein said effective dosage rate is about 0.815 gram moles of lithium nitrate per cubic foot of grout.

31. A method for inhibiting the corrosion of metals embedded in mortar, said mortar manufacturable from a process comprising the activities of:

obtaining lithium nitrate; and

mixing said lithium nitrate with said mortar at an effective dosage rate.

32. The method of claim 31, wherein said effective dosage rate is between about 0.01 gram moles of lithium nitrate per cubic foot of mortar and about 80 gram moles of lithium nitrate per cubic foot of mortar.

33. The method of claim 31, wherein said effective dosage rate is between about 0.01 gram moles of lithium nitrate per cubic foot of mortar and about 82 gram moles of lithium nitrate per cubic foot of mortar.

34. The method of claim 31, wherein said effective dosage rate is between about 0.01 gram moles of lithium nitrate per cubic foot of mortar and about 100 gram moles of lithium nitrate per cubic foot of mortar.

35. The method of claim 31, wherein said effective dosage rate is between about 0.01 gram moles of lithium nitrate per cubic foot of mortar and about 0.1 gram moles of lithium nitrate per cubic foot of mortar.

36. The method of claim 31, wherein said effective dosage rate is between about 0.1 gram moles of lithium nitrate per cubic foot of mortar and about 1 gram moles of

lithium nitrate per cubic foot of mortar.

37. The method of claim 31, wherein said effective dosage rate is between about 1 gram moles of lithium nitrate per cubic foot of mortar and about 10 gram moles of lithium nitrate per cubic foot of mortar.

38. The method of claim 31, wherein said effective dosage rate is between about 10 gram moles of lithium nitrate per cubic foot of mortar and about 100 gram moles of lithium nitrate per cubic foot of mortar.

39. The method of claim 31, wherein said effective dosage rate is about 0.815 gram moles of lithium nitrate per cubic foot of mortar.

40. A method for inhibiting the corrosion of metals embedded in cementitious material, said cementitious material manufacturable from a process comprising the activities of:

obtaining lithium nitrate; and

applying said lithium nitrate to the surface of said cementitious material at an effective dosage rate.

41. The method of claim 40, wherein said effective dosage rate is between about 0.01 gram moles of lithium nitrate per cubic foot of cementitious material and about 100 gram moles of lithium nitrate per cubic foot of cementitious material.

42. The method of claim 40, wherein said effective dosage rate is between about 0.01 gram moles of lithium nitrate per cubic foot of cementitious material and about 0.10 gram moles of lithium nitrate per cubic foot of cementitious material.

43. The method of claim 40, wherein said effective dosage rate is between

about 0.1 gram moles of lithium nitrate per cubic foot of cementitious material and about 1 gram moles of lithium nitrate per cubic foot of cementitious material.

44. The method of claim 40, wherein said effective dosage rate is between about 1 gram moles of lithium nitrate per cubic foot of cementitious material and about 10 gram moles of lithium nitrate per cubic foot of cementitious material.

45. The method of claim 40, wherein said effective dosage rate is between about 10 gram moles of lithium nitrate per cubic foot of cementitious material and about 100 gram moles of lithium nitrate per cubic foot of cementitious material.

46. The method of claim 40, wherein said effective dosage rate is about 0.815 gram moles of lithium nitrate per cubic foot of cementitious material.

47. A method for inhibiting the corrosion of metals in embedded in cementitious material, said cementitious material manufacturable from a previously heated Portland cement composition, said Portland cement manufacturable from a process comprising the activities of:

obtaining lithium nitrate; and

admixing said lithium nitrate with said Portland cement composition at an effective dosage rate.

48. The method of claim 47, wherein said effective dosage rate is between about 0.01 gram moles of lithium nitrate per cubic foot of cement and about 100 gram moles of lithium nitrate per cubic foot of cement.

49. The method of claim 47, wherein said effective dosage rate is between about 0.01 gram moles of lithium nitrate per cubic foot of cement and about 0.1 gram moles of lithium nitrate per cubic foot of cement.

50. The method of claim 47, wherein said effective dosage rate is between about 0.1 gram moles of lithium nitrate per cubic foot of cement and about 1 gram moles of lithium nitrate per cubic foot of cement.

51. The method of claim 47, wherein said effective dosage rate is between about 1 gram moles of lithium nitrate per cubic foot of cement and about 10 gram moles of lithium nitrate per cubic foot of cement.

52. The method of claim 47, wherein said effective dosage rate is between about 10 gram moles of lithium nitrate per cubic foot of cement and about 100 gram moles of lithium nitrate per cubic foot of cement.

53. The method of claim 47, wherein said effective dosage rate is about 0.815 gram moles of lithium nitrate per cubic foot of cement.

54. A method for inhibiting the corrosion of metals embedded in cementitious material, said cementitious material comprising a Portland cement composition, said Portland cement composition creatable from a method comprising the activities of:

obtaining lithium nitrate;

admixing said lithium nitrate with said Portland cement in an amount sufficient to inhibit the corrosion of metals; and

heating said material to form a Portland cement clinker.

55. The method of claim 54, wherein said sufficient amount provides a molar ratio of lithium to sodium equivalent in the resultant cement clinker of between about 0.01:1 to about 10:1.

56. The method of claim 54, wherein said sufficient amount provides a molar ratio of lithium to sodium equivalent in the resultant cement clinker of between about 0.01:1 to about 0.1:1.

57. The method of claim 54, wherein said sufficient amount provides a molar ratio of lithium to sodium equivalent in the resultant cement clinker of between about 0.1:1 to about 1:1.

58. The method of claim 54, wherein said sufficient amount provides a molar ratio of lithium to sodium equivalent in the resultant cement clinker of between about 1:1 to about 5:1.

59. The method of claim 54, wherein said sufficient amount provides a molar ratio of lithium to sodium equivalent in the resultant cement clinker of between about 5:1 to about 10:1.

60. A composition comprising:

a concrete or cementitious material comprising between about 0.01 gram moles of lithium nitrate per cubic foot of concrete to about 100 gram moles of lithium nitrate per cubic foot of concrete or cementitious material.

61. The composition of claim 60, wherein said concrete or cementitious material comprises between about 0.01 gram moles of lithium nitrate per cubic foot of concrete to about 0.1 gram moles of lithium nitrate per cubic foot of concrete or cementitious material.

62. The composition of claim 60, wherein said concrete or cementitious material comprises between about 0.1 gram moles of lithium nitrate per cubic foot of concrete to about 1 gram moles of lithium nitrate per cubic foot of concrete.

63. The composition of claim 60, wherein said concrete or cementitious material comprises between about 1 gram moles of lithium nitrate per cubic foot of concrete to about 10 gram moles of lithium nitrate per cubic foot of concrete or cementitious material.

64. The composition of claim 60, wherein said concrete or cementitious material comprises between about 10 gram moles of lithium nitrate per cubic foot of concrete to about 100 gram moles of lithium nitrate per cubic foot of concrete or cementitious material.

65. The method of claim 60, wherein said concrete or cementitious material comprises about 0.815 gram moles of lithium nitrate per cubic foot of grout or cementitious material.

66. A composition comprising:

a grout comprising between about 0.01 gram moles of lithium nitrate per cubic foot of grout to about 100 gram moles of lithium nitrate per cubic foot of grout.

67. The composition of claim 66, wherein said grout comprises between about 0.01 gram moles of lithium nitrate per cubic foot of grout and about 80 gram moles of lithium nitrate per cubic foot of grout.

68. The composition of claim 66, wherein said grout comprises between about 0.01 gram moles of lithium nitrate per cubic foot of grout and about 82 gram moles of lithium nitrate per cubic foot of grout.

69. The method of claim 66, wherein grout comprises between about 0.01 gram moles of lithium nitrate per cubic foot of grout and about 0.1 gram moles of lithium nitrate

per cubic foot of grout.

70. The method of claim 66, wherein said grout between about 0.1 gram moles of lithium nitrate per cubic foot of grout and about 1 gram moles of lithium nitrate per cubic foot of grout.

71. The method of claim 66, wherein said grout comprises between about 1 gram moles of lithium nitrate per cubic foot of grout and about 10 gram moles of lithium nitrate per cubic foot of grout.

72. The method of claim 66, wherein said grout comprises between about 10 gram moles of lithium nitrate per cubic foot of grout and about 100 gram moles of lithium nitrate per cubic foot of grout.

73. The method of claim 66, wherein said grout comprises about 0.815 gram moles of lithium nitrate per cubic foot of grout.

74. A composition comprising:

a mortar comprising between about 0.01 gram moles of lithium nitrate per cubic foot of mortar to about 100 gram moles of lithium nitrate per cubic foot of mortar.

75. The composition of claim 74, wherein said mortar comprises between about 0.01 gram moles of lithium nitrate per cubic foot of mortar and about 80 gram moles of lithium nitrate per cubic foot of mortar.

76. The composition of claim 74, wherein said mortar comprises between about 0.01 gram moles of lithium nitrate per cubic foot of mortar and about 82 gram moles of lithium nitrate per cubic foot of mortar.

77. The method of claim 74, wherein mortar comprises between about 0.01 gram moles of lithium nitrate per cubic foot of mortar and about 0.1 gram moles of lithium nitrate per cubic foot of mortar.

78. The method of claim 74, wherein said mortar between about 0.1 gram moles of lithium nitrate per cubic foot of mortar and about 1 gram moles of lithium nitrate per cubic foot of mortar.

79. The method of claim 74, wherein said mortar comprises between about 1 gram moles of lithium nitrate per cubic foot of mortar and about 10 gram moles of lithium nitrate per cubic foot of mortar.

80. The method of claim 74, wherein said mortar comprises between about 10 gram moles of lithium nitrate per cubic foot of mortar and about 100 gram moles of lithium nitrate per cubic foot of mortar.

81. The method of claim 74, wherein said mortar comprises about 0.815 gram moles of lithium nitrate per cubic foot of mortar.

82. A composition comprising:

a cementitious material comprising an effective amount lithium nitrate per cubic foot of cementitious material for inhibiting the corrosion of metals embedded in cementitious material.